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The Scaddan Implement, A Re-analysis of a Probable Acheulian Handaxe Found in Western Australia

C.E. Dortch* and J.E. Glover†

Introduction

In 1949 N.B. Tindale described a bifacially flaked flint implement found in a rural district of Western Australia and interpreted it as an Aboriginal artefact (Tindale 1949). The specimen (Figures 1 and 2), known as the Scaddan implement, had been the subject of debate among several Australian scholars for a decade prior to Tindale's publication. The late H.V.V. Noone was apparently somewhat puzzled by the Scaddan implement, and in his only published reference to the specimen wrote:

> In the neighbourhood of Scaddon [*sic*], near Esperance, has been found a remarkable biface implement in flint, with unfortunately the point broken. This shows dark stained patination, and is in form and appearance strikingly similar to the Lower Paleolithic implements found in England (Noone 1943: 278).

F.D. McCarthy was not hesitant in questioning the origin of the Scaddan implement. He states:

> There is some doubt as to whether the Scaddan specimen is an Australian implement. It resembles more closely the flint *coup de poing* from Europe, examples of which, brought here by various people or in ships' ballast, have found their way into strange places in Australia. (McCarthy 1958: 178)

Our own doubts about the Scaddan implement being an Aboriginal artefact have led to the following re-analysis.

Provenance

In 1930 Mr Burney Randell donated the bifacially flaked stone implement shown in Figures 1 and 2 to the Western Australian Museum, Perth. The late Mr Randell had found the artefact during road building operations near Scaddan, a small settlement 48 km north of Esperance, Western Australia (Figure 3). The late Mr Ludwig Glauert, then Curator of the Museum, registered the specimen 'E9636'[1]

* Archaeology Department, Western Australian Museum, Francis Street, Perth, Western Australia 6000.

† Geology Department, University of Western Australia, Nedlands, Western Australia 6009.

[1] Specimen registration numbers referred to in the text pertain to the archaeological collection, Western Australian Museum, Perth.

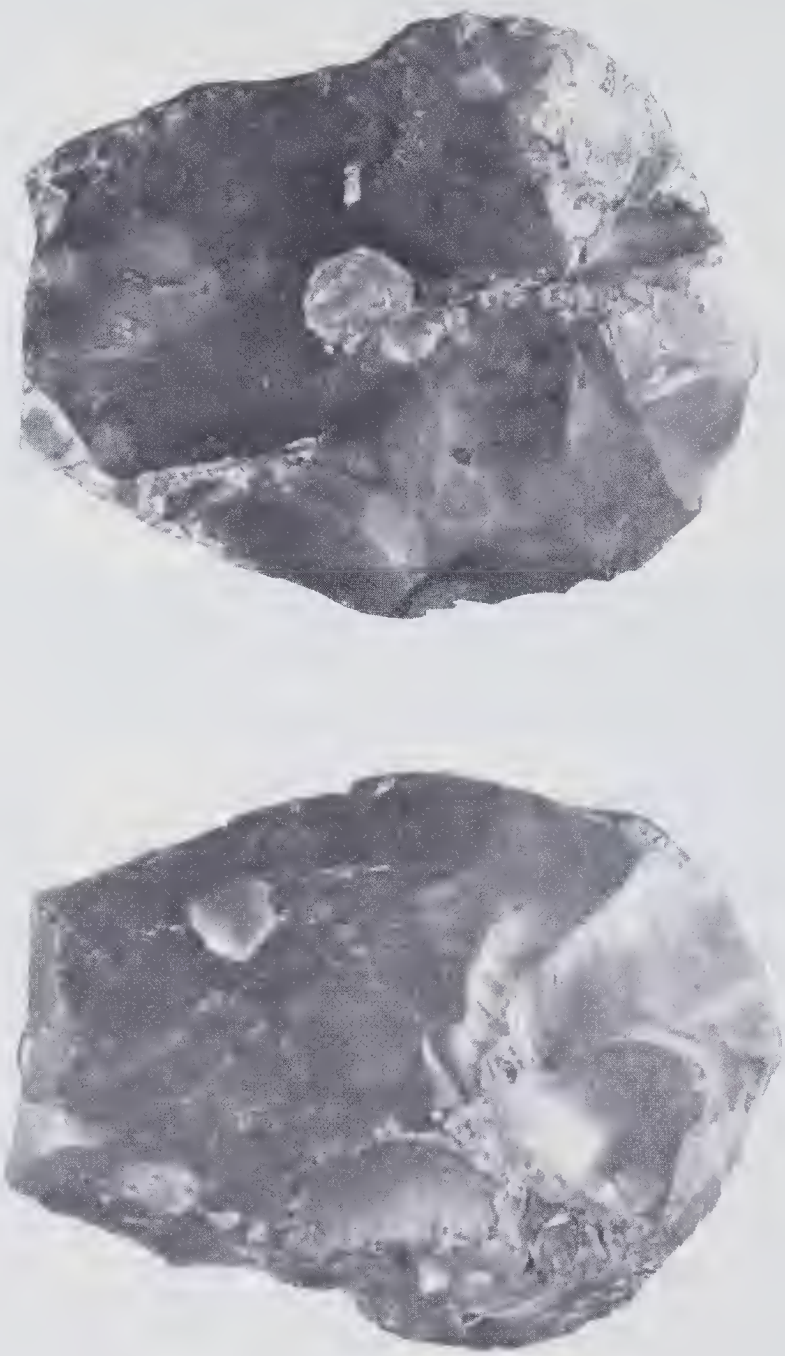

Figure 1 The Scaddan implement.

and described it as 'a chipped and used flint'. The provenance of the piece, as given in the Museum register in Glauert's handwriting, is: '30 miles NE of Esperance, behind Duke of Orleans Bay.' An original label adds the notations 'Palaeolith' and 'Scaddan dist.'. A few years later Glauert referred to the piece as the 'Scaddan Implement' in his official correspondence (W.A. Museum archives).

In April 1939, Glauert showed the specimen to Tindale in Perth, and a few weeks later Tindale visited the Scaddan area but failed to recover any similar artefacts. In his description of the Scaddan implement Tindale provides the only known description of the circumstances of the find and of the neighbourhood of the find site.

> The present biface implement from Scaddan, registered number WAM [E] 9636, was found by Mr Randall [*sic*] about 1930 during the excavation of surface soil and laterite gravel in the making of the main road from Norseman to Esperance. The actual site was on a plain 35 miles inland, north of Esperance.
>
> In 1939, with Dr J.B. Birdsell, an opportunity occurred to visit the area where this implement had been found. It proved to be on a broad, virtually treeless, laterite-gravel covered plain, extending for many miles, with only slight undulations and occasional washed out gutters, several feet in depth. These did not, however, cut through the laterite soil layers. Water was scarce in the area and no definite signs of former native occupation could be detected. One day's searching of such erosion gutters in the vicinity yielded no useful evidence. It seemed likely, however, that the yellow staining of the patinated flint, which is equally well affected on both faces of the implement, might have developed by burial in such a lateritic soil. (Tindale 1949: 164-165)

In a letter dated 16 February 1944, Glauert states:

> I have shown [the Scaddan implement] to persons interested in stone implements as it is so unlike anything previously known to us from Western Australia. To me it always brings to mind the British and French palaeolithic 'Hand-axe' or 'Boucher' and it is my opinion that it is a European object brought to Western Australia and either lost or intentionally thrown away. (Letter to H.M. Hale, Esq., W.A. Museum archives)

In the same letter Glauert concedes that the piece 'may eventually prove to be a Western Australian [specimen] which closely resembles the old European type.'

In 1971 one of us (C.E.D.) examined the Scaddan implement and concluded that it was simply a mis-labelled Acheulian handaxe, probably from south-eastern England, which had been mistakenly registered under an Australian provenance. However, after reading the above comments and descriptions of Glauert, McCarthy, Noone and Tindale, and after making inquiries which established that Mr Randell, the finder, had actually given the piece to Glauert on his return from the Esperance area, it became clear that the piece had been indeed collected at Scaddan.

Archaeological Description (C.E.D.)

The Scaddan implement is a stained, patinated, heavily abraded and invasively flaked flint biface; the extremity of its narrow end has been broken off, as

indicated in Figure 2. The surface of the fractured extremity is patinated and stained, and its edges are abraded, thus showing that this is an ancient break. Small patches of cortex remaining on both faces show that the piece is made from a nodule or piece of tabular stone and not from a large flake or flaked fragment. Tindale (1949: 163) gives the tool's dimensions as follows: length 110 mm; width 83 mm; and thickness 43 mm.

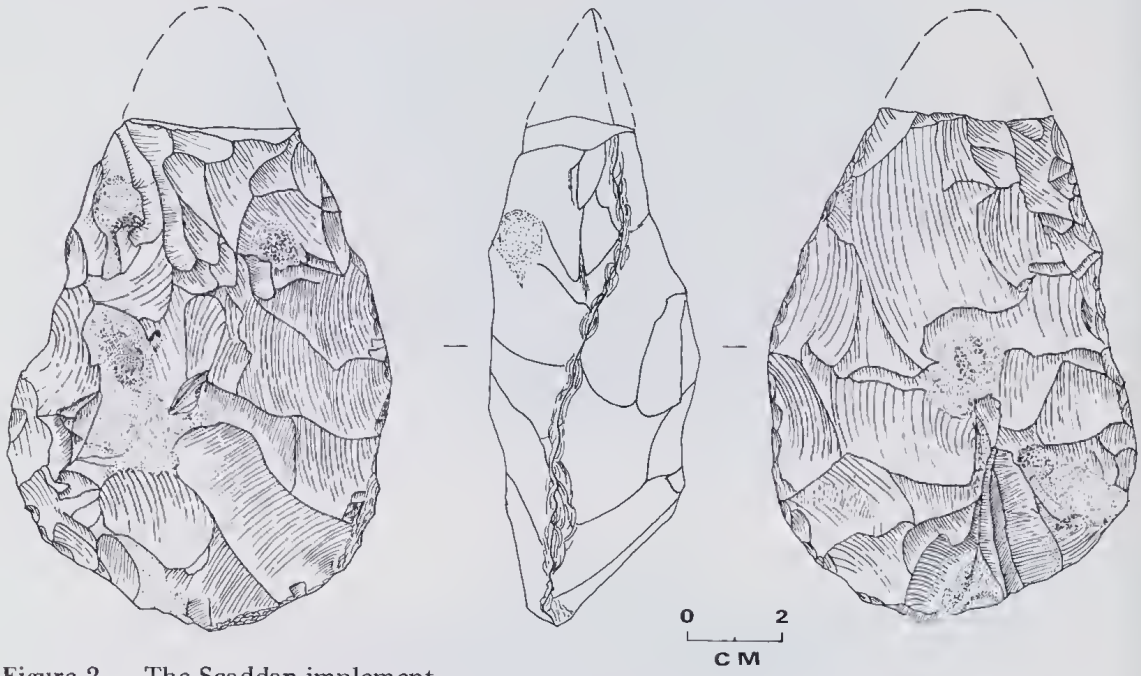

Figure 2 The Scaddan implement.

Both faces of the piece are very largely covered with invasive flake scars. Most of these are shallow, including some which are elongated. Flake scars of this kind are typical of those produced by direct percussion using a 'soft' hammer of bone or antler (Bordes 1961: 8; Newcomer 1971: 88-90). There are some smaller flake scars along the edges which were produced deliberately to shape and straighten the edges. One edge (Figure 2) is very clearly in the form of the 'inverted S' described by Wymer for Thames valley Palaeolithic handaxes (Wymer 1968: 56), and the other edge is slightly curved towards the upper end.

Both edges are largely obliterated by small, relatively deep and overlapping flake scars typical of the natural edge damage resulting from abrasion or battering by transported material in rapidly flowing water. These scars are in part obscured by marked rounding and grinding which again is typical of the damage found on stream abraded stone artefacts (Shackley 1974; Wymer 1968). This damage extends over most of both edges; on parts of the edges of the broken narrow extremity; and on many of the ridges between the flake scars on both faces. In places the abraded surfaces are as much as 3 mm wide, and thus according to

Figure 3 Map showing localities mentioned in the text.

Shackley's classification (1974: Table 1), the piece can be described as heavily abraded.

The heavily abraded condition of this piece is anomalous for the Scaddan district, where there is no water source of sufficient velocity to produce abrasion to the degree noted above. With the exception of wave action on sea beaches there is no source of high velocity water flow along the whole of the south coast of Western Australia, a distance of some 1300 km; and there seem to be no relict Quaternary high velocity stream channels in this region. Therefore, unless it had been abraded on a local beach, the Scaddan implement must be introduced.

There is a hairline crack extending for 30 mm on one face of the Scaddan implement (left end, upper view, Figure 1). Such cracks are commonly found on English Palaeolithic handaxes, and Wymer (1968: 16) attributes them to frost action. If this hairline crack results from frost it would suggest that the piece had been subjected to temperatures very much colder than those at Scaddan, where at present frost is rare and never severe (*Western Australian Year Book* 1973). However past climates in the area may have been sufficiently cold to produce hairline cracks in flint.

Typologically this specimen can be most conveniently described in terms of classifications based largely on the outline shapes of English or French Palaeolithic handaxes (cf. Bordes 1961; Roe 1968; Wymer 1968). A firm classification is not possible as the specimen is incomplete, and because it is an isolated find (cf. Roe 1975: 2). However if the implement had been found in a Thames valley Palaeolithic site it could be classified under Wymer's 1968 scheme as a type 'G' (sub-cordate) or a type 'J' (cordate). In either case the piece would receive the subletter 'f' because of the inverted S-twist on one edge (Wymer 1968: 55-60).

Using Roe's (1968) multi-variate analysis of English Lower and Middle Palaeolithic handaxes, the Scaddan implement can be placed tentatively within the 'ovate tradition' in which some pointed forms occur. Following Bordes' study of European Palaeolithic handaxes (Bordes 1961: Figures 8 and 9) the piece could be described as 'cordiform'. The above provisional classifications help support the view that the Scaddan implement, both stylistically and typologically, is very similar to evolved Acheulian handaxes from southern England (Roe 1968; Wymer 1968).

Although it is distinctive, the Scaddan implement is not the only bifacially flaked large implement from south-western Australia. Recently there have been found two other bifaces, one from Dunsborough (Figure 4; Glover *et al.* 1978), and another from Ellen Brook, 40 km to the south (Figure 5). Both these pieces are unequivocally south-western in origin, since they are made of Eocene bryozoan chert thought to have been quarried by Aborigines from outcrops on the continental shelf which are now submerged by post-glacial sea level rise (see below). These pieces do not resemble Palaeolithic handaxes, but they do show that south-western Aborigines did make bifaces, if only rarely. Both implements

are from sites where there are rich chert assemblages thought to be Middle Holocene to late Pleistocene in age (Bindon and Dortch 1982; Ferguson 1980). No other evidence for bifacial flaking is known from other chert or flint assemblages from Devil's Lair, Quininup Brook, Koonalda Cave or a number of other late Pleistocene to early Holocene sites in the South-West, the south coast, or the Nullarbor Plain (cf. Dortch 1979; Ferguson 1981; Wright 1971).

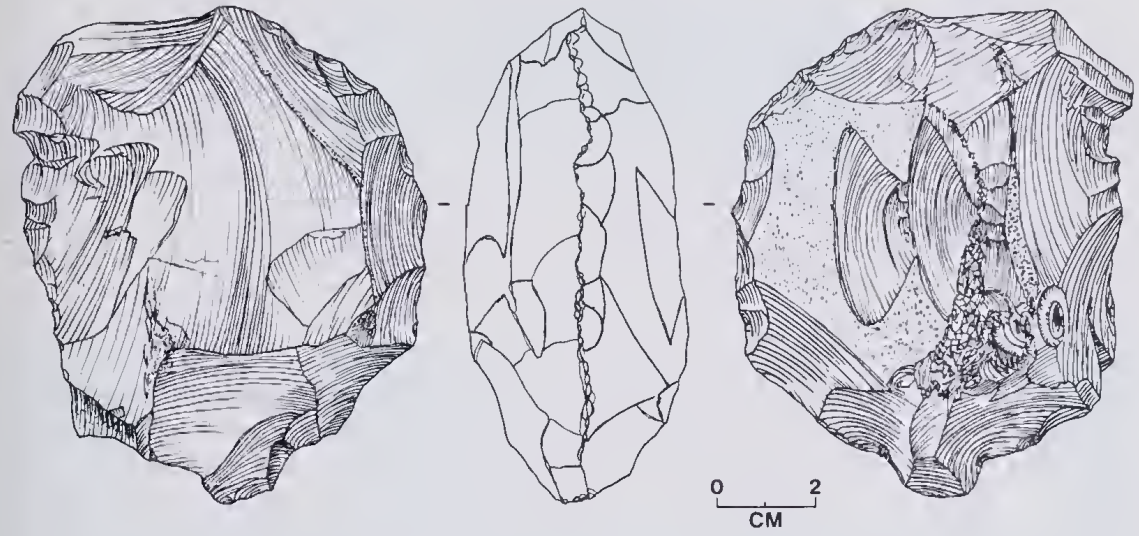

Figure 4 The Dunsborough implement.

Geological Implications (J.E.G.)

Geological Setting of the Scaddan Implement

Western Australian geological units near the south coast which yield flint for artefacts comprise the Late Eocene Plantagenet Group around and west of Esperance (Figure 3) and the Middle and Late Eocene Wilson Bluff Limestone, which extends along coastal cliffs from South Australia about 400 km westward, and is also exposed in caves in the Nullarbor Plain. Playford *et al.* (1975) outline the geology of the area. Some 200 km north of Esperance, near Norseman, the Late Eocene Norseman Limestone is also locally silicified. English flints used for Palaeolithic handaxes, on the other hand, were nodules or tabular pieces from Cretaceous chalk (Wymer 1968: 14). Thus, if the age of the Scaddan implement could be determined from its fossils, the problem of its provenance would be greatly clarified. Unfortunately, as described below, the fossils are too altered for precise determination, and the less definitive factors of surface staining, patination, mineralogy and texture must be used.

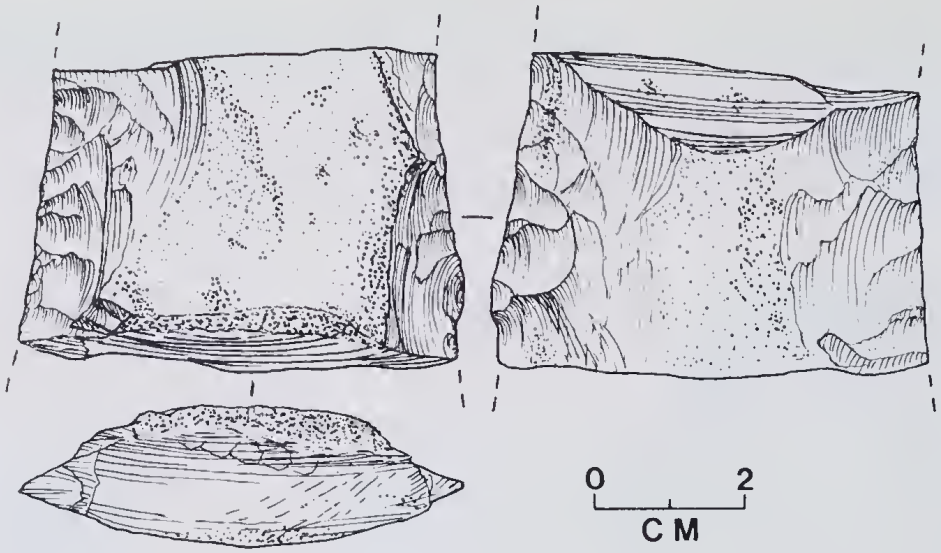

Figure 5 The Ellen Brook biface.

Chert and Flint: A Problem of Terms

There is confusion in the use of the terms chert and flint. Petrologists, who define rocks from their chemistry, mineralogy and texture, use the term chert for dense rocks composed of one or more forms of silica, namely, opal, cryptocrystalline and microcrystallinc quartz, and chalcedony (a fibrous form of quartz). Chert commonly forms by silicification of sedimentary rock, frequently limestone, as can be demonstrated by field relationships, and by contained relicts of originally non-siliceous fossils. Chert can also form as a primary rock, by chemical precipitation. The term flint is recognized by most petrologists as a synonym for chert that should be dropped, or at best, reserved for chert used in artefacts (e.g. Pettijohn 1975: 394). To some archacologists the term chert has a different meaning; for examplc Bray and Trump (1973: 57) define chert as poor quality flint. The term flint, which is widely used and understood by archaeologists, and is synonymous with chert as defined by the petrologists, will be retained here. All flint described in this paper contains microfossils, and appears to be formed by secondary silicification of sedimentary rocks that were at least partly calcareous.

Patina and Stain

The surface of flint bodies is commonly described in terms of patination and staining (e.g. Wymer 1968: 16). When alkaline water passes over the surface of a flint object it begins to dissolve individual grains of the fine-grained siliceous aggregate, reducing their size and thus leaving minute spaces between them (see Schmalz 1960). The rcsultant, modified, slightly porous aggregate scatters light more than the dense, unaltered flint within the body, and produces a distinct white or bluish-white envelope or patina around the darker core. Patination may

proceed to a depth of over 1 mm, but commonly forms a far thinner skin. It can affect the original surface of a flint nodule, or naturally or artificially flaked surfaces. Stains, on the other hand, are produced by deposition of colouring agents, commonly iron oxide or manganese oxide. Staining solutions easily penetrate patinas because of their porosity, and the stain on patinated flint may therefore extend well below the surface.

Petrology and Palaeontology of the Scaddan Implement

The surface of the Scaddan implement is locally rather polished and shiny, and ranges, because of staining, from light brown (5 YR 5/6) through dark yellowish-brown (10 YR 4/2) and dark yellowish-orange (10 YR 6/6) to yellowish-grey (5 Y 7/2).[2] The surface in places contains crescentic marks up to 1 mm in diameter, which appear to be shell shards that are not especially obvious in thin section of the fresh rock, but which have been accentuated on the stained and patinated surface. There are also several greyish, dull, circular, rather bulbous areas about 1 cm in diameter on the surface. Sectioning shows that the interior of the rock is aphanitic and medium grey (N 5), but that parts of it consist of well-defined irregularly shaped bulbous masses commonly about 1 cm in diameter, of aphanitic, pinkish-grey (5 YR 8/1) material. These may account for the bulbous surface areas. Sectioning also shows that a patina of about 0.1 mm thick has absorbed some of the stains which colour the surface. Staining and patination prevent translucency in hand-specimen, even on the sharp edges of the cuts made for thin section analysis.

Microscopic examination reveals that both the medium grey and pinkish-grey material in the core are cryptocrystalline silica (i.e. with a mean grain-size $<$ 0.01 mm in diameter). The medium grey material is clear in thin section whereas the pinkish-grey material is cloudy, and contains abundant clay-sized impurities. Fossils are found throughout. They consist of spicules, rare globigerinid foraminifera, shell shards, and material of uncertain affinities. There are traces of probable dinoflagellates, but upon extraction they proved too altered for satisfactory determination.

Table 1

	Na	K	Li	Fe	Ca	Mg	Al	P
Scaddan implement	402	199	4.3	375	301	18	251	58
Dunsborough implement	520	380	4.1	1065	99	69	640	24

Analytical data for the Scaddan implement, and for the Dunsborough implement which is described below, are presented in Table 1 (P analysed by inductively coupled plasma spectrometry, Li by flame emission spectrophotometry, other elements by atomic absorption spectrophotometry, figures in ppm).

[2] Colours and symbols refer to the Rock-color Chart (Rock-color Chart Committee 1963).

Comparison of the Scaddan Implement with English Handaxes

The Scaddan implement was compared with an Acheulian handaxe from Taplow, Buckinghamshire, England (A5608) and one from Maidenhead, Berkshire, England (A5603). The three are similar in external and internal colouration, but the patination of the Maidenhead specimen is less pronounced than that of the other two. The Maidenhead handaxe also contains a portion composed of radiating chalcedony, not evident in the others, but no significant distinction can be made between the three, petrologically or palaeontologically. Analytical data were compared with those presented for British and European flint by Sieveking *et al.* 1972, but the results appear to be inconclusive.

Comparison with the Flint from the Esperance Area

Flakes (artefacts) have been collected from sites within 30 km of Esperance and are doubtless derived from the Plantagenet Group. They fall into two main categories:

1 The first category contains flakes ranging in surface colour mainly from greyish-orange (10 YR 7/4) to very light grey (N 8) and white (N 9). These flakes are composed of dull opal and clear, rather translucent chalcedony. Microscopically, the chalcedony shows up as flaring aggregates with opal commonly exhibiting colloform texture. Microfossils are poorly preserved. This flint is mineralogically and texturally quite distinct from the flint of the Scaddan implement.
2 The second category contains flakes that are composed of clear cryptocrystalline silica, and range from greyish-red (10 R 4/2) and moderate yellowish-brown (10 YR 5/4), to light grey (N 7). They thus resemble the surface of the Scaddan implement in colour, but their colouration persists, fairly uniformly, throughout the flakes. There is no patination, and thin portions are moderately translucent. There are in places small patches of a white chalcedonic skin, but these appear to represent portions of the original surfaces of the nodules or beds from which they were struck. Under the microscope, small dusty aggregates of clay-sized impurity, indeterminate fossil remains (probably globigerinid foraminifera), possible pelletal material, and angular grains of quartz sand and silt are present in the cryptocrystalline siliceous base. The differences between the flint of these flakes and that of the Scaddan implement suggest that they come from different flint formations, but it is not possible to make a significant distinction between them.

Comparison with Flint from Artefact Scatters 140 km east of Norseman

These flakes (A22038) are very like the second category just described from Esperance. They are composed essentially of cryptocrystalline silica and contain vaguely defined microfossils, palimpsests of possible calcareous pellets, and angular grains of quartz silt. No patination was observed, and surface colouration persists throughout. It is not certain which formation yielded the material, and it

may have been derived either from silicified Norseman Limestone, or from rocks of the Plantagenet Group.

Comparison with Flint from Wilson Bluff Limestone

The flakes which were collected from Wilson Bluff (B998) range from white (N 9) through shades of pale grey to light brownish-grey (5 YR 6/1). Flake scars lack patination, but a few areas which seem to represent natural surfaces of the nodule from which the flakes were struck, have a white (N 9) or pinkish-grey (5 YR 8/1) patina of cryptocrystalline quartz up to 0.5 mm thick. Under the microscope it can be seen that the flint is composed essentially of cryptocrystalline silica, and contains abundant, well-defined, siliceous bryozoa. This flint seems to belong to a different formation to that of the Scaddan implement.

Comparison with the Dunsborough Implement

The Dunsborough implement (Figure 4) which was recovered from the small resort of that name on Geographe Bay about 200 km south of Perth, has been described in detail (Glover *et al.* 1978). The implement ranges from medium bluish-grey (5 GY 6/1) and yellowish-grey (5 Y 7/2), and is rimmed locally by a bluish-white (5 B 9/1). patina. In thin section, it can be seen to consist essentially of silicified bryozoa and foraminifera in a matrix of cryptocrystalline silica. Texturally, the Dunsborough implement seems to fit within the considerable range exhibited by flint artefacts from the Perth basin. It differs from the Scaddan implement in colour and in containing more and better preserved skeletal material.

There is no doubt that the Dunsborough implement originates in the Southern Hemisphere for it contains a microflora probably of Early or Middle Eocene age that includes *Nothofagidites* sp. and *Haloragicidites harrissii.* The surface colouration, texture, size and general morphology of the implement place it within the range of biface variation known from European Palaeolithic assemblages, but stylistically it does not closely resemble any of the classic forms of Acheulian or Mousterian handaxes from north-western Europe.

The geological formation from which the Dunsborough implement is likely to have been derived was probably exposed west of the present west coast before the Flandrian transgression. If so, its provenance will have been far to the west of the provenances of Western Australian flints described above, and its geological history will have been different. There are no chemical analyses of artefacts known to have originated in the Albany-Wilson Bluff area with which the data of the Scaddan and Dunsborough implements can be compared.

Summary

Petrographic comparisons show that the raw material of the Scaddan implement resembles English flint, but petrography does not supply a sufficient basis for

ruling out an origin in south-western Australia. Unlike the Dunsborough implement and some flakes from the Perth Basin (Glover 1975), the Scaddan handaxe has not yielded diagnostic fossils. However, the mineral staining on this specimen is very similar to the distinctive and varied ochreous hues found on the Thames valley handaxes, and its patination resembles that found on many European Palaeolithic implements (cf. Wymer 1968).

Discussion

Typological and technological considerations, and various surface features suggest that the Scaddan implement is English in origin, and the petrology accords with the hypothesis. If it is English, there are two basic ways in which the specimen could have come to Australia, both of which have been suggested by McCarthy (1958: 178). Firstly, the piece could have been brought by an English settler between *c.* 1870 and the 1920s. Secondly, it could have been carried to Australia in flint ballast loaded in the lower Thames valley or another part of southern England during the 19th century.

For the first alternative it is significant that many English emigrants came to Western Australia during the 1920s, some decades after English Palaeolithic implements had become common collectors' items in England (Wymer 1968). Many emigrants settled on farms north of Esperance, and the Scaddan implement may simply be a lost specimen or curio which had belonged to one of these people. The piece may even have been deliberately left in a place where it was likely to be discovered, but we do not think that a hoax is more likely than a purely accidental set of circumstances leading to its discovery.

The idea of ballast origin is attractive. McCarthy (1958: 178) implies that flint implements have more than once been dumped with ballast in Australia; and Tindale (pers. comm., N.B. Tindale) states that flint tools have been recovered from 'Thames gravel' ballast at Port Lincoln, South Australia (Figure 3). Dumps of English ballast are also known from Rockingham, and from Hamelin Bay, near Devil's Lair, but no flint implements have been reported from them. Unfortunately, we know of no flint ballast at Esperance, the nearest port to Scaddan.

There are several ways in which an implement carried in ballast could have been transported inland. Large pebbles and cobbles are uncommon in some south-western coastal areas, and on occasion ballast stones have been used as road and railway filling. Conceivably local quartzite cobbles used in surfacing the Esperance-Kalgoorlie road in the vicinity of Scaddan were supplemented by flint ballast brought from the port. If so, the Scaddan implement could have been brought there in a load of road surfacing material and was subsequently discovered during road improvements.

Another feasible origin may be connected with the use of English flint pebbles in the processing of gold ore in the Kalgoorlie area during the 1890s (pers. comm.,

D. Hutchison). Although the origin of these pebbles is obscure it is likely that they were brought from ballast dumps on the coast. There was a great deal of traffic between Esperance and Kalgoorlie during the 1890s gold rush, and it is plausible that English flint pebbles, intended for the Kalgoorlie mills, were for some reason lost or dumped at Scaddan, and that the Scaddan implement was among them. Or someone, perhaps an Aborigine, may have found the Scaddan implement at an ore mill site or in a ballast dump at one of the ports and then taken it to Scaddan.

No choice can be made at present between the alternatives listed above. It is significant, however, that there are several ways in which a European Palaeolithic implement could have reached Scaddan.

Our evidence corroborates the opinions of earlier workers that the Scaddan implement is likely to be of European origin. Nevertheless, Tindale's interpretation (Tindale 1949) of Aboriginal origin was clearly not unreasonable. Large, bifacially flaked, stone artefacts are distributed all over mainland Australia. Most of these pieces are edge-ground axes, whose working edges have been shaped by bifacial grinding. Many others are unground axe rough-outs or blanks, and often these were important trade items carried over long distances (e.g. Binns and McBryde 1972; Mulvaney 1976). Blanks for edge-ground axes and other large bifaces stylistically reminiscent of Acheulian or Mousterian handaxes are uncommon or rare, though they occasionally do occur in assemblages in widely separated regions. The best documented concentration of large, invasively flaked flint bifaces on the Australian continent is found in south-eastern South Australia and western Victoria. Tindale (1941) designated these assemblages the 'Gambierian' industry, after nearby Mt Gambier, South Australia. Illustrations of selected bifaces from this district (Mitchell 1949: Figures 32, 33; Stapleton 1945: Figures 1, 10, 11) show them to be very similar to Palaeolithic handaxes, as noted by these two authors, and by others (McCarthy 1940: 30-33; Mulvaney 1961: 71-72; Tindale 1941: 145, 165).

The regional stone industries of Kimberley and parts of the Northern Territory also contain a series of bifacially flaked spear points, including occasional rough-outs resembling Palaeolithic handaxes. McCarthy (1976: Figure 8) illustrates several bifaces from the Barkly Tableland, N.T. and north-western Queensland which are similar to small Mousterian handaxes.

A unique example of an ethnographic or modern Australian biface which bears a striking resemblance to an Acheulian handaxe comes from Rosewood Station in the Ord Valley, east Kimberley (Figure 3). This specimen (Figure 6) was made on 10 September 1972 by a craftsman of the Miriwung tribe, and collected by one of us (C.E.D.). The Miriwung man made this artefact in about two minutes using a river pebble weighing approximately 0.7 kg as a hammerstone. The production of this piece was entirely unsolicited, and it is most unlikely that the craftsman had ever seen any illustrations or specimens of Acheulian handaxes. Designated by its maker as a multi-purpose axe or hatchet (and termed

menindhelang in the Miriwung language), the piece is a most impressive example of the recurrence of a stone tool form through time. Had it been intended for use this implement would have been hafted, and presumably would have had a cutting edge made by grinding on both faces of its broad end. However it is made of ferruginous siltstone, an inferior rock seldom or never used as the material for edge-ground axes, which are typically made of fine-grained igneous rock, or of quartzite. Other rough-outs or blanks for Australian edge-ground axes or for spear points resemble Palaeolithic handaxes, though not generally to the degree seen in this piece from east Kimberley.

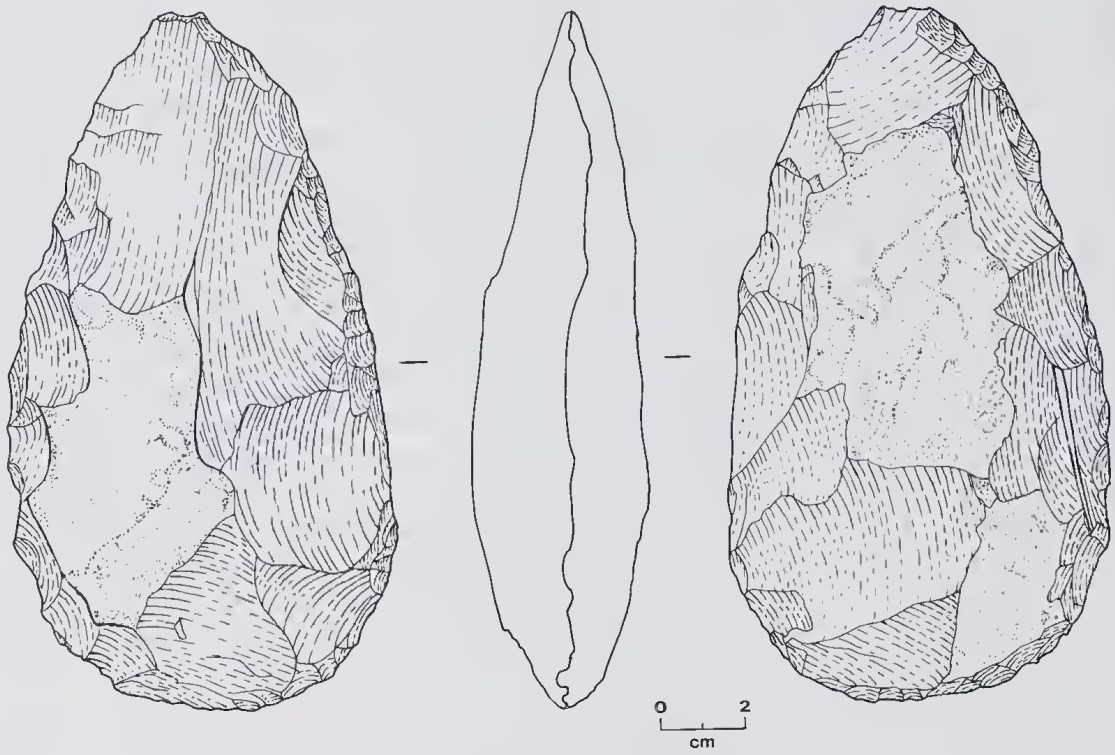

Figure 6 Modern Australian biface, Rosewood Station, Kimberley.

Tindale obtained functional data for a kind of crude tool resembling a Lower Palaeolithic biface which was still being made a few decades ago on Bentinck and Mornington Islands in the Gulf of Carpentaria (Figure 3). This tool, described as being of 'crude biface form' (Tindale 1949: 161), and as a 'bifacial fist axe' (Tindale 1977: 26) is called *tjilangand* by its Kaiadilt makers. Tindale observed that these handaxes were used for heavy woodworking and, in the case of old specimens, 'may serve for hammering oysters off rocks.' (1977: 260). He also notes that in woodworking the *tjilangand* fist axe tends to be used by pushing the cutting edge away from the user, rather than drawing it towards him. Brief though they are, Tindale's observations are probably the most relevant ethnographic data

recorded anywhere for suggesting the function of Lower or Middle Palaeolithic handaxes.

It is clear then that large, bifacially flaked tools, sometimes closely resembling Palaeolithic handaxes, are an integral part of Australian material culture, both archaeological and ethnographic. At the same time European Palaeolithic implements have occasionally, in F.D. McCarthy's words, 'found their way into strange places in Australia.'

The evidence for the origin of the Scaddan implement is not conclusive, but its typology and style, technique of manufacture, heavily abraded condition, colouration, patina and petrography accord well with an origin in Europe, and less well with an Australian origin. We have shown, moreover, how the artefact could have been brought to Scaddan, in one of several ways, from England. The Scaddan implement is therefore probably an English Acheulian handaxe.

Acknowledgements

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